Date.	Weighted mean solar constant values.		Date.	Weighted mean solar constant values.	
	Original.	Corrected.		Original.	Corrected.
1920.			1920.		
May 16	1.957	1.963	June 18	1.933	1.941
17	1.945	1.952	19	1.941	1.942
19	1.959	1.959	23	1.939	1.947
20	1.961	1.964	24	1.941	1.942
21	1.930	1.936	25	1.914	1.921
22	1.934	1.939	26	1.948	1.951
23	1.939	1.942	27	1.918	1.925
24	1.938	1.942	30	1.940	1.939
25	1.963	1.970	July 1	1.936	1.944
26	1.914	1.921	2	1.944	1.949
27	1.959	1.964	3	1.929	1.935
28	1.948	1.952	4	1.942	1.948
29	1.940	1.942	5	1.950	1.955
30	1.977	1.986	6	1.949	1.948
31	1.946	1.952	7	1.942	1.948
June 1	1.933	1.937	8	1.945	1.951
2	1.938	1.942	9	1.941	1.944
3	1.956	1.968	10	1.927	1.932
4	1.926	1.929	11	1.938	1.945
5	1.955	1.960	12	1.938	1.944
6	1.945	1.951	15	1.925	1.933
7	1.933	1.938	18	1.921	1.933
8	1.924	1.929	19	1.920	1.932
9	1.936	1.940	20	1.942	1.950
10	1.929	1.933	21	1.953	1.965
11	1.937	1.943	22	1.946	1.947
12	1.918	1.924	24	1.943	1.950
13	1.935	1.939	25	1.936	1.943
14	1.910	1.917	26	1.943	1.950
15	1.926	1.929			

SOLAR CONSTANT AND SUN SPOTS.

By A. ÅNGSTRÖM.

[Abstract reprinted from *Meteorologische Zeitschrift*, Aug., 1921, pp. 250-251.]

In the *Geografiska Annaler*[1] there is given an instructive coordination of the Abbot solar-constant values and the relative sun-spot numbers of Wolfer for the years 1905 to 1917. The values are the annual means.

Year	Sun spot number N.	Solar constant S.	
		Observed.	Calculated.
1905	63	1.956	1.946
1906	58	1.942	1.945
1907			
1908	55	1.936	1.944
1909	46	1.918	1.940
1910	21	1.921	1.928
1911	3	1.921	1.922
1912			
1913	1	1.904	1.900
1914	9	1.956	1.919
1915	62	1.952	1.946
1916	50	1.946	1.942
1917	113	1.960	1.961

A high sun-spot number implies a high solar constant. The coefficient of correlation between S and N Ångström calculates to be 0.64 ± 0.12. A better agreement is found, however, between the solar constant and the square root of the spot number. Here the correlation coefficient is 0.754 ± 0.09. This relation is important, for it indicates that the square root of the sun-spot numbers is a better index of solar activity than the numbers themselves. For the relation between S and N, Ångström finds the following formula: $S = 1.93 + 0.0055\sqrt{N}$ gram-calories; with this formula the column in the table headed "Calculated" is determined.

Ångström adds with foresight that by no means does the agreement in a sun-spot period persist so that one may speak with assurance, although the validity of the relation appears very probable.—*F. M. E.*

[1] 1920, 2: 162.

551.524 (782) (784)

SUPPLEMENTAL NOTE ON FREE-AIR TEMPERATURE AT DREXEL AND ELLENDALE DURING THE WARM SUMMER OF 1921.

In this REVIEW for July, 1921, page 387, reference was made to the high free-air temperatures as obtained by kites at the two stations above named during the abnormally warm winter of 1920–21. The observations for August, 1921, are now available. These, like those for the preceding month, show that the temperature, from the surface up to 1,000 meters above sea-level, was slightly below the average and that above this level the temperature was higher than the average. Thus it appears that the free-air temperature above the stations named has been above the average for three successive months, particularly in June.

In previous studies it has been shown that abnormalities in the surface distribution of temperature are reflected in the free air up to a considerable height, probably to 5 km., although the kite observations at that level are not numerous. The natural explanation of the high temperature seems to be analogous to the one governing the surface distribution—viz, insolation plus transportation of heated air from lower latitudes. Through the courtesy of the Aerological Division, I am able to present the table below, which shows the average resultant free-air winds at successive levels in steps of 500 meters up to the greatest height reached by the kites at the stations above named for June, and also for comparison therewith the resultant winds for June, 1921.

TABLE 1.—*Resultant winds (average and for June, 1921) in free air at Drexel, Nebr., and Ellendale, N. Dak.*

[The Drexel average is for five years; Ellendale is for three years.]

	Altitude (meters above sea level).					
	396	444	1,000	1,500	2,000	2,500
Drexel:						
5-year average	S. 19° W.	.....	S. 46° W.	S. 69° W.	S. 72° W.	S. 83° W.
June, 1921	S. 7° E.	.....	S. 11° W.	S. 16° W.	S. 20° W.	S. 10° W.
Ellendale:						
3-year average	.....	N. 73° E.	S. 31° E.	S. 54° W.	S. 66° W.	S. 82° W.
June, 1921	.....	S. 25° E.	S. 10° W.	S. 26° W.	S. 36° W.	S. 40° W.

	Altitude (meters above sea level).				
	3,000	3,500	4,000	4,500	5,000
Drexel:					
5-year average	S. 89° W.	N. 89° W.	N. 78° W.	N. 67° W.	N. 51° W.
June, 1921	S. 26° W.	S. 14° W.	S. 30° E.	S. 40° E.	N. 68° E.
Ellendale:					
3-year average	N. 89° W.	N. 87° W.	N. 75° W.	N. 70° W.	.....
June, 1921	S. 41° W.	S. 18° W.	S. 23° W.	N. 45° W.	.....

The striking feature of the table is the fact that southerly winds prevailed up to a level about 1,000 meters higher than the average, and as a consequence the lower limit of the northerly winds, which on the average prevail down to the 3,500-meter level, was elevated somewhat. May it not be assumed that the effect of the unusual warmth in June was cumulative during July and August, and that there is a considerable lag in the temperature of the free air as compared with the surface air?—*A. J. Henry.*